GAVRILOV, M. A.

*Gavrilov, M. A. Isolation of loops acting on a given element in relay circuits. Translated by Morris D. Friedman, 572 California St., Newtonville 60, Mass., 1956. 5 pp.
Translated from Dokl. Akad. Nauk SSSR (N.S.). 87 (1952), 413-416.

1-FIW

MT

1. GAVRILOV, M. A.

2. USSR (600)

4. Electric Relays

7. Gereration in relay circuit systems acting upon a given element, Dokl. AN SSSR, 87, No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

GAVRILOV, M.A.; KURDYUKOV, K.P.

Conference on the telemechanization of electric power systems. Izv.AN
SSSR Otd.tekh.nauk no.4:642-651 Ap '53.   (MLRA 6:8)
                                    (Electric engineering) (Automatic control)

GAVRILOV, M.A.

KARLINSKAYA, M., kandidat tekhnicheskikh nauk, laureat Stalinskoy premii; MAG-
NICHKINA, V., nauchnyy sotrudnik; YEFREMOV, E.A.; NEKRASOV, K.A.; GAVRI-
LOV, M.A., doktor tekhnicheskikh nauk, professor, consultant.

Time-impulse system of pressure telemetry for liquids and gases. Zhil.
-kom. khoz. 3 no.3:5-8 Mr '53.   (MLRA 6:5)

1. Akademiya kommunal'nogo khozyaystva, Laboratoriya avtomatiki (for Kar-
linskaya, Magnichkina, Efremov, Nekrasov).   (Pressure gages)

GAVRILOV, M.A. (Moskva)

Designing relay circuits with bridge connections proceeding from nonoperating conditions. Avtom. i telem. 14 no.2:188-198 Mr-Ap '53.

(MIRA 10:3)

(Electric relays) (Automatic control)

GAVRILOV, M.A. (Moskva); KURDYUKOV, K.P.(Moskva)

Criteria for evaluating remote control installations. Avtom. i telem.
14 no.4:424-439 Jl-Ag '53.   (MLRA 10:3)
                (Remote control)

GAVRILOV, M. A.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of
science and inventions announces that the following scientific works, popular scien-
tific books, and textbooks have been submitted for competition for Stalin Prizes for
the years 1952 and 1953. (Sovetskaya Kultura, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Gavrilov, M. A.	"The Theory of Relay Con- tact Systems"	Institute of Automatics and Telemechanics, Academy of Sciences USSR

SO: W-30604, 7 July 1954

GAVRILOV, M. A.

"General Questions of Research Work in the Field of Introduction of Remote Control in Power Systems" from the book Remote Control of Power Sytems, published by the AS USSR, 1954.

GAVRILOV, M. A.

"Fundamental Tendencies in the Raise of Speed of Action of Remote-Control Installations" from the book Remote Control of Power Systems, published by the AS USSR, 1954.

GAVRILOV,M.A., otvetstvennyy redaktor; IL'IN V.A., redaktor; KRASIVSKIY, S.P., redaktor; KURDYUKOV, K.P., redaktor; MALOV, V.S., redaktor; RAYNES, R.L., redaktor; BRYLEYEV, A.M., redaktor; GRAKOVA, Ye.D., tekhnicheskiy redaktor

[Telemechanics in power engineering systems] Telemekhanizatsiia energosistem; materialy soveshchaniia 1952 g. po telemekhanizatsii energosistem. Moskva, Izd-vo Akademii nauk SSSR, 1954. 213 p.

(MLRA 8:3)

1. Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.
(Remote control)   (Electric power)

USSR/Electronics - Relay circuits synthesis   FD-1397

Card 1/1   : Pub. 10 - 6/12

Author   : Gavrilov, M. A. (Moscow)

Title   : Principal formulas in the synthesis of relay circuit schemes

Periodical   : Avtom. i telem., 15, No 6, 521-537, Nov-Dec 1954

Abstract   : The author treats the principal formulas in the synthesis of circuits which
                   permit one to obtain on the basis of tables of connections the primary form-
                   ulas of the circuits and investigates the realizability of the tables of
                   connections (switching tables). Four references: V. I. Shestakov, "Alge-
                   braic method of synthesis of autonomic systems of two-position relays,"
                   ibid., 15, No 4, 1954. V. N. Roginskiy, "Taking into account the nonutil-
                   ized states in the synthesis of relay-contact circuits," ibid., 15, No 3,
                   1954. M. A. Gavrilov, Teoriya releyno-kontaktnykh skhem [Theory of relay-
                   contact circuits], Acad. Sci. USSR Press, 1950. Keister, Ritchie, Wash-
                   burn, The Design of Switching Circuits, N. Y. 1953.

Institution   :

Submitted   : October 9, 1953

GAVRILOV, M. A.

Gavrilov, M. A. Relay schemes with vacuum-tube circuits. Avtomat. i Telemeh. 16 (1955), 328–343. (Russian)
This paper discusses the reduction of the number of relay contacts in multi-input-switch, multi-output-coil networks by the use of diodes. It is stated and exemplified that by the insertion of resistance and (usually) many rectifiers, such a network can be synthesized in a manner using exactly one transfer contact on each input variable.
V. E. Beneš (Murray Hill, N.J.).

Gavrilov, M.A.

USSR/ Engineering - Telemechanics

Card   1/1   Pub. 124 - 2/39

Authors   : Gavrilov, M. A., Dr. Tech. Sc.

Title   : Scientific problems of the telemechanization of production

Periodical : Vest. AN SSSR 25/5, 16 - 24, May 1955

Abstract   : The advantages of telemechanics or remote control systems are pointed
             out. Reference is made to a nation-wide conference called in 1954 by
             the Institute of Automatization and Telemechanics of the Academy of
             Sciences, at which the conclusion was reached that the extremely se-
             vere demands made on technology by telemechanical equipment cannot be
             met by existing facilities. An analysis is made of the various fields
             in which telemechanization is considered most urgent, the railroads
             and waterways being given a prominent place in the discussion.

Institution : .....

Submitted : .....

Gavrilov, M.A.

USSR/Engineering - Automatization

Card 1/1   Pub. 86 - 3/36

Authors   : Gavrilov, M. A., Prof.

Title   : Automatization and telemechanics

Periodical : Priroda 44/6, 19 - 30, Jun 1955

Abstract   : The advantages of automatization are pointed out. So-called cyclic automatization and the role of electricity in its execution are explained. Machinery of the type which permits data to be fed into it in order to execute varied operations is discussed in detail. It is shown how automatic machinery can be so wired that a single person, through remote control, can do the work of many men operating under the old manual systems with the manual operations restricted to the repair and adjustment of the machinery. Illustrations: diagrams.

Institution: .....

Submitted: .....

GAVRILOV, M. A. Doctor of Technical Sciences

"Fundamental Scientific Problems Arising From Problems of Telemechanization in the National Economy of the USSR." a paper given at the Conference on Scientific Problems of Production Automation, Moscow State U. 15-20 Oct 56.

GAVRILOV, M. A., Dr. of Tech. Sci.

"Analytic and Graphic Analytic Methods of Synthesis of Decoding Devices" a paper presented at the Conference on Methods of Development of Soviet Mathematical Machine-Building and Instrument-Building, 12-17 March 1955.

Translation No. 596, 8 Oct 56

GAVRILOV, M. A. (Prof.)

"Condition and Problems of Development of the Structural Theory of the Design of Automatic and Remotely-controlled Discrete Action (Digital) Devices,"

paper read at the Session of the Acad. Sci. USSR, on Scientific Problems of Automatic Production, 15-20 October 1956.
Avtomatika i telemekhanika, No. 2, p. 182-192, 1957.

9015229

KAVALIEV M.A.

PHASE I BOOK EXPLOITATION   813

Soveshchaniye po telemekhanizatsii v narodnom khozyaystve SSSR.
Moscow, 1954. Telemekhanizatsiya v narodnom khozyaystve;
materialy soveshchaniya...(Remote Control in the National
Economy; Materials of a Conference) Moscow, Izd-vo AN SSSR,
1956. 481 p. 3,000 copies printed.

Sponsoring Agency: Akadmeiya nauk SSSR. Institut avtomatiki i
telemekhaniki.

Resp. Ed.: Gavrilov, M.A.; Eds: Il'in, V.A., Zhozhikashvili, V.A.,
Petrovskiy, A.M.; Malov, V.S., Ostianu, V.M.; Ed. of Publishing
House: Pobedimskiy, V.V.; Tech. Ed.: Kiseleva, A.A.

PURPOSE: This book is intended for scientists and engineers engaged
in the research and development of remote control.

COVERAGE: The monograph is a collection of papers presented at the
All-Union conference called by the Institute of Automation and

Card 1/32

Remote Control in the National Economy (Cont.)   813

Remote Control of the USSR Academy of Sciences on November 29, 1954. The articles deal with theoretical problems of remote control and various problems of research. They discuss the development of new methods in telemetering and review the present state of the research, development, and manufacture of remote control equipment. Problems concerning remote control communication channels and the general theory of telemetering devices and controls are treated very briefly, while problems in the manufacture of remote control apparatus are not included. The articles were discussed at the conference and the results of these discussions are also presented. For references see Table of Contents.

TABLE OF CONTENTS: 3

Card 2/32 7/1

Remote Control in the National Economy (Cont.)   813

The article discusses a theory of signal shaping which includes methods of combining pulses and determining the correlation between the number of signals and pulses needed for signal shaping. It deals with problems of obtaining binary numbers tables in which the change of 0 into 1 or vice versa would give the binary number missing in the table. Methods of obtaining a table of nonchanging signals are also given. It is stated that the analysis of stability of remote control signals conducted by the Institute of Automation and Remote Control of the USSR Academy of Sciences is still in the initial stage of development and is chiefly limited to the investigation of relay-contact stability. There is a brief discussion of the construction and transformation of relay systems, methods of constructing ganged units for pulse generation, control, starting, and stopping, and protection, and the possibilities of employing contactless elements. It is indicated that, in general, the development of remote control systems in the USSR is still in the initial stage. There are 9 references, of which 6 are Soviet and 3 English.

Card 3732

Remote Control in the National Economy (Cont.)   813

V.A.Il'in. Basic Problems of Scientific Research. Work   51
in the Field of Telemetering.

The article discusses in general terms problems of the
reliability and efficiency of telemetering, as well as possible
methods of improvement. There are 8 references, of which 7
are Soviet and 1 English.

B.S. Sotskov. Reliability of the Operation of Relay Element   59
Contacts

The author derives equations for contact wear under different
operating conditions, the limiting value of current in the
circuit, and the actual contact area and pressure. There is
a brief discussion of the relationship between contact wear
and reliability of relay operation. There is 1 Soviet
reference.

Card 4/32

Remote Control in the National Economy (Cont.)   813

A.M. Petrovskiy. Some Possibilities of Applying the Intelligence   71
Theory to Remote Control

The article discusses general aspects of the transmission of
coded intelligence, as well as the possibilities of employing
coding technique in the field of remote control. There are
5 Soviet references (including 1 translation).

V.N. Chepurin. Manufacture of Remote Control Apparatus by the   77
Elektropul't Plant

The author states that during the five-year period, 1951-1956,
the Elektropul't Plant developed over 70 types of apparatus
for remote control measurements, telesignalling, and for use in
control rooms. It is stated that the measuring instruments for
short-distance operation can transmit measurements for 17-20
kilometers. Their accuracy is about ±1.5-2%. Since January,
1954, the plant has been manufacturing units with compensating

Card 5/30

Remote Control in the National Economy (Cont.)   813

transformers which make it possible to measure up to 10 similar parameters with a single receiving unit. The error of this unit is not greater than ±3%. At the end of 1951 the Orgres-Electropul't Frequency System began manufacturing the narrow-band TChO-3 frequency instrument for transmitting measurements. The TChO-3 instrument operates on 13 different frequencies in the range of 340-3150 cycles. It makes possible the transmission of measurements for practically any distance. The expected error of this instrument is about ±2.5%, but the practical error does not exceed ±2%. It is stated that the PMS and PDChS type two-scale receiving devices were replaced by the PMDG and PDDG type single-scale instruments. The PMDG type has an error of ±0.75%. The circuit of the self-compensating frequency meter of tne PPCh type was also improved. The author also lists various devices of the VRT-53 type time-distributing system used for telesignal-ling. There is a discussion of a remote control and telesignalling unit-type device for the UTB-55 time-distributing system and the VUST-1 and VUST-2 rectifiers with stabilizing circuits. A short description is given of control room equipment, such as memory

Card

Remote Control in the National Economy (Cont.)   813

devices and dispatchers' supervision boards of the ShchD-1 and ShchD-2 types. There are no references.

Ya. L. Bykhovskiy. Modern High-frequency Channels Using   85
Electric Transmission Lines

The article presents a general discussion of problems encountered in the transmission of signals. Such factors as weather conditions, faults, and interference and their effect on the efficiency of high-frequency transmission are described. A list, (with specifications), of various apparatus used for high-frequency transmission and reception is given on p.87. Their operation and structural diagrams are discussed. There are no references.

PART 2.   REMOTE CONTROL

M.A. Gavrilov, Doctor of Technical Science. State of the Theory of   99
Relay Circuits

Card 7/22

Remote Control in the National Economy (Cont.)   813

The article discusses the fundamentals of relay circuit theory and gives some examples to illustrate its possible application in the construction of blocks of remote control devices. Problems of synthesis, analysis, and transformation of relay circuits are discussed. There are 5 Soviet references.

G.N. Povarov. Present State of the Problem Concerning the Minimum Number of Structural Components in Relay Switching Circuits   134

The article discusses the problem of evaluating relay circuits by taking into consideration the number of contacts present in a circuit. There are 11 references, of which 6 are Soviet, 3 English, 1 French, and 1 Dutch.

V.N. Roginskiy. Relay Counting Circuits   139

A general discussion of circuits for counting current current pulses is presented. Steps involved in the design of

Card 8/32

Gavrilov, M.A.

Postroenie Signalov Teleupravlenila s
Kombinirovannym Ispol'zovaniem Im-
pul'snykh Priznakov. M. A. Gavrilov.
Avtomatika i Telemekhanika, Dec., 1955,
pp. 1,092-1,113. In Russian. Analysis
of the theory of construction of telecontrol
signals in combination with pulse indica-
tions.

RAW
MT

GAVRILOV, M.A., doktor tekhnicheskikh nauk.

Functions of "memory" and comparison in automatic machines.   (MLRA 9:11)
Priroda 45 no.10:30-39 O '56.
        (Electronic calculating machines)

GHICAETT   PL.B.

TOPCHIYEV, A.V., akademik, glavnyy redaktor; GAVRILOV, M.A., doktor tekhni-
cheskikh nauk, otvetstvennyy redaktor; MAKUNI, Ye.V., tekhnicheskiy
redaktor

[Session of the Academy of Sciences of the U.S.S.R. on scientific
problems in automatization of the production, October 15-20, 1956.
Scientific problems in the telemechanization of production processes]
Sessiia Akademii nauk SSSR po nauchnym problemam avtomatizatsii pro-
izvodstva, 15-20 oktiabria 1956 g.; nauchnye problemy telemekhanizatsii
proizvodstvennykh protsessov. Moskva, 1957. 215 p.   (MIRA 10:4)

1. Akademiya nauk SSSR.
                    (Remote control)

GAVRILOV, M. A., Dr. Eng. Sci., Prof., AS USSR

"A Survey of the Research in the Theory of Relay Networks in the USSR," a paper submitted at the International Symposium on the Theory of Switching, Harvard University, 2-5 Apr 57.

SOV/ 112-58-1-982

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 1, p 145 {USSR}

AUTHOR: Gavrilov, M. A.

TITLE: Fundamental Scientific Problems Arising From Telemechanical Applications in the National Economy of the USSR (Osnovnyye nauchnyye problemy, vytekayushchiye is zadach telemekhanizatsii v narodnom khozyaystve SSSR)

PERIODICAL: Sessiya AN SSSR po nauch. probl. avtomatiz. proiz-va, 1956, Vol 4, Moscow, AS USSR, 1957, pp 15-43

ABSTRACT: Bibliographic entry.

AVAILABLE: Library of Congress

     1. Telemeter systems--Economic aspects

Card 1/1

SOV/44-58-4-2777

Translation from: Referativnyy zhurnal, Matematika, 1958,
Nr 4, p 32 (USSR)

AUTHOR: Gavrilov, M.A.

TITLE: The Developmental State and Problems of the Structural
Theory of the Construction of Automatic and Telemechanical
Relay Devices (Sostoyaniye i zadachi razvitiya strukturnoy
teorii postroyeniya avtomaticheskikh i telemekhanicheskikh
ustroystv releynogo deystviya)

PERIODICAL: Sessiya AN SSSR po nauchn. probl. avtomatiz. proiz-va,
1956, T.2, Moscow, AN SSSR, 1957, 256-284

ABSTRACT: A study is made of structural theory applied to the
construction of relay devices, which are technical means of
transforming and transmitting discrete effects in modern
systems of automation and telemechanics. Problems are form-
ulated for the optimum construction of a relay device. The
facts are presented on the development of structural theory
in the USSR and abroad. For the solution of the problem of

Card 1/2

SOV/44-58-4-2777

The Developmental State and Problems (Cont.)

synthesis, analysis, and equivalent transformations of the
circuits of relay devices, structural theory offers algebraic,
graphic-analytic, geometric and numerical methods. A short
review is given of the methods of synthesis of relay circuits
(determination of the realizability of their operation, the
derivation of the primary block diagram of the device), methods
of equivalent transformation of relay circuits (transformation of
parallel-series circuits, construction of bridge circuits), and
methods of circuit analysis. Methods of the synthesis and
analysis of circuits with various relay elements are explained.
Information is given on the development of machine methods of
relay circuit analysis and synthesis in the USSR and abroad.

Lyu. L. Tomfel'd

Card 2/2

Gavrilov, M. A.

30-2-2/49

AUTHOR: Gavrilov, M. A. , Doctor of Technical Sciences

TITLE: **Basic Problems of the Theory of Telemechanic Devices**.
                        (Osnovnyye voprosy teorii telemekhani-
            cheskikh ustroystv)

PERIODICAL: Vestnik Akademii Nauk SSSR,1958.   Nr 2, pp 13-22(USSR)

ABSTRACT: The main task of equipments for remote control is the trans-
            mission of communications on the operational state of the
            production aggregates and of their control stations by means
            of transmitting special signals. For this purpose cable trans-
            missions, as well as radio- and high frequency channels are
            employed. Even in the simplest cases the equipment for re-
            mote control and -signalling represents a complicated system
            of relais blocks, as is to be seen from figure 1. The block
            system of an equipment for remote control with transmission
            of continuous signals, as it is presently used in telemetering
            devices, is shown in figure 2. Both devices shown in figures
            1 and 2 do not satisfy the modern requirements any longer.
Card 1/4   In many cases such devices become necessary, which simulta-

30-2-2/49

neously and by means of the same transmission canals perform
the task of remote control and -signalling, as well as the
telemetering and remote regulation. The remote-control-labo-
ratory of the Institute for Automatics and Telemechanics,
which is under the direction of the author, has recommended
the system shown in figure 3, which guarantees a manipula-
tion of objects distributed on a wide territory. The scien-
tific collaborators R. V. Bilik, Ye. V. Babicheva, and V. N.
Silayev took part in this work. Furthermore, the author
mentions 3 paragraphs of the theory of equipments for re-
mote control, and describes and explains them in detail.
1) Theory of the structure of signals for remote control.
2) Structural theory of relais devices.
3) Transformation theory of remote measuring quantities.

Signal systems jointly operating are not yet applied in prac-
tice, however, those ones have been theoretically investigat-
ed in detail by the works of V. I. Siforov, R. R. Varshamov,
M. A. Gavrilov and a number of foreign scientists. In the
remote-control-laboratory simple schemes of so-called dis-
crete relais correctors and others were elaborated (V. M.

Card 2/4

30-2-2/49

Basic Problems of the Theory of Telemechanic Devices

Ostianu, V. N. Rodin and B. L. Timofeyev). The task of investigating the stability of disturbance of signal transmissions by fluctuating disturbances was solved to a considerable extent by the works of V. A. Kotel'nikov, V. N. Bunimovich, V. I. Siforov, S. Rays and others. V. N. Roginskiy, C. N. Povarov, M. A. Gavrilov, F. Svoboda and others worked at the method of developing bridge-structures. The author takes the mechanization of the analytical and synthetical processes as a fundamental presumption for the development of the structure theory of relais devices. P. P. Parkhomenko of the remote-control-laboratory has developed an universal machine for the structure analysis of relais devices. The first machine for the synthesis of relais schemes was created in the Laboratory for Problems of Cable Transmissions of the AN USSR (V. N. Roginskiy, V. G. Lazarev, A. A. Arkhangel'skaya). Moreover, the author states that a great number of complicated and hitherto not solved scientific problems are to be solved, and he regrets that the state of the works in this field must be considered to be unsatisfactorily. Measures must be taken to promote the development of

Card 3/4

Basic Problems of the Theory of Telemechanic Devices

30-2-2/49

those works in academic institutions, academies and branch institutes. In the electrotechnical and polytechnical institutes professorial chairs for telemetering should be established, too. There are 3 figures.

AVAILABLE:　Library of Congress

1.　Telemetering systems-Theory　2.　Telemetering-Equipment

Card 4/4

HEYMAN, L.R.; POLIVANOV, K.M.; ZHEKULIN, L.A.; GONOROVSKIY, I.S.; SOLOV'YEV,
I.I.; TSYPKIN, Ya.Z.; GAVRILOV, M.A.; UL'YANOV, S.A.; LAVROV, V.M.

Professor G.I. Atabekov; on his 50th birthday. Elektrichestvo no.7:
93 Jl '58.   (MIRA 11:8)
            (Atabekov, Grigorii Iosifovich, 1908-)

SOV-25-58-8-5/61

AUTHOR: Gavrilov, M.A., Doctor of Technical Sciences, Head of the
              Laboratory

TITLE: A **Productive**Principle (Plodotvornyy printsip)

PERIODICAL: Nauka i zhizn', 1958, Nr 8, pp 4-7 (USSR)

ABSTRACT: There are two methods of building automatic installations,
              continuous action and relay action. The principle of relay
              action is being used more and more. The author deals with
              the working of installations built on the principle of relay
              action, showing how they differ from ordinary action. He
              points out that the principle difference consists in that the
              relay action has only 2 conditions; either closed or dis-
              connected. The article contains a schematic diagram showing
              a relay system of consecutive action. The author emphasizes
              the fact that very complicated processes may be reduced to
              the elementary operation of functioning or non-functioning
              relays. He maintains, that, in the future, automatic
              machines on a relay principle will carry out complicated and
              extremely labor-consuming statistical work, conduct trains,
Card 1/2   control entire mining operations and many other production

A **Productive**Principle

processes.
There are 3 diagrams, 1 graph and 2 photos.

ASSOCIATION: Institut avtomatiki i telemekhaniki AN SSSR (Institute of
Automation and Telemechanics AS USSR)

1. Control systems--Theory   2. Industry--USSR   3. Industry
--Control systems

Card 2/2

Gavrilov m. A.

30-1-36/39

AUTHOR: Ostianu, V. M.

TITLE: Problems in the Theory of Relay Devices   (Problemy
teorii ustroystv releynogo deystviya).
All-Union Conference in Moscow (Vsesoyuznoye soveshchaniye v Moskve).

PERIODICAL: Vestnik AN SSSR, 1958, Vol. 28, Nr 1, pp. 131-132 (USSR).

ABSTRACT: The Institute for Automation and Remote Control AN-USSR convened a
Conference which took place from October 3 to October 9 1957. The follow=
ing problems figured on the agenda: Synthesis, analysis, reconstruc=
tion of the relay structure and effect, the best construction and
structure, automation of analytical processes, etc: The council was
attended by representatives of scientific institutions and industrial
firms, as well as by scientists from other countries. The following
reports were made:
1) A. M. Letov stressed the importance of the part played by relay
    devices in the automation of the finishing process.
2) M. A. Gavrilov characterized the present stage and the main trends
    of the development of these devices, and said that with respect
    to works published in this field, the USA and the NSSR ranged
    first, while the Roumanian Peoples' Republic ranged third.
Card 1/4 3) S. A. Yanovskaya investigated the characteristic features of the

Problems in the Theory of Relay Devices.   3o-1-36/39
All-Union Conference in Moscow

       development of mathematical logics as well as the fields of their
       technical application.

4) G. K. Moisil, Regular Member of the Roumanian Academy, stressed
    the influence exercised by Soviet scientists (V. I. Shestakov,
    M. A. Gavrilov) on the development in his country.

5) A. A. Markov spoke about the inversion of complicated systems of
    functions.

6) A. Svoboda (Czechoslovakia): His report on certain possibilities
    of using contact grids was read.

7) Yu. A. Bazilevskiy: On temporary logical functions.

8) K. Popovich (Roumania) suggested an improved representation of
    functions.

9) A. V. Kuznetsov: On the impossibility of constructing an algebraic
    apparatus with a finite number of functions.

1o) S. V. Yablonskiy: On the application of the existing theory for
    new elements with relay effect.

11) T. L. Maistrova.On the application of non-equivocal logics.

12) G. K. Moisil: His report on the synthesis of relay schemes was
    read.

13) M. A. Gavrilov: Investigated methods of Constructing bridge cir-
    cuits.

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Problems in the Theory of Relay Devices.
All-Union Conference in Moscow.

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14) P. Konstantinesku (Roumania): On the method of constructing multipole contacts.
15) V. N. Reginskiy: On the graphic method of constructing (I,k)-poles.
16) A. D. Kharkevich: On the application of the methods of probability diagrams.
17) V. I. Shestakov: On the algebraic method of analysis and synthesis.
18) Ya. I. Wekler: On the graphic method of the construction of relay contact schemes.
19) V.G. Lazarev: On the method of determining the minimum relay number.
2o) M. Nedelku (Roumania): On electronic circuits with relay effect.
    G. Manin.
21) L. Kalmar, Corresponding Member of the Hungarian Academy of Science: On the logical Seged machine.
22) F. Svoboda (Czechoslovakia): On the working principle of a machine for the synthesis of contact circuits.
23) A. A. Arkhangel'skaya: On a machine for the synthesis of contact poles.

Card 3/4

30-1-36/39

Problems in the Theory of Relay Devices.
All-Union Conference in Moscow.

V. G. Lazarev.
V. N. Roginskiy.
24)   P. P. Parkhomenko. On problems concerning the automation of the
analysis of relay schemes.
T. T. Tsukanov.

The extent to which the field of the theory of devices with relay ef=
fect has been investigated is described as insufficient. In connec=
tion with the council an exhibition of devices and publications dea=
ling with this field was organized.

AVAILABLE: Library of Congress.

1. Automation-Conference   2. Scientific reports-USSR

Card 4/4

8(3)
AUTHORS: Gavrilov, M. A., Ostianu, V. M.,   SOV/20-123-6-19/50
             Rodin, V. N., Timofeyev, B. L.

TITLE: The Realization of Discrete Schemes of Correctors
             (Realizatsiya skhem diskretnykh korrektorov)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 123, Nr 6, pp 1025-1028
             (USSR)

ABSTRACT: Correctors most efficiently can be put into practice in a class
             of one-period schemes. The schemes of discrete correctors which
             belong to the class of conversion schemes have some special
             features. The present paper deals with these peculiarities and
             also with the realization of one of the corrector types on
             contact relays, crystal elements, and hysteresis elements. The
             construction of a corrector on the basis of an electromechanical
             relay can be reduced to the construction of a $(1,n)$ pole which
             puts into practice the obtained functions of the effect upon the
             n executive elements. (n denotes the number of the discharges in
             the binary representation of the signal) Formulae are given for
             the properties of these functions. The problem of the construction
             of correctors on the basis of electronic or crystal elements can
             be reduced to the construction of a system of values

Card 1/2

The Realization of Discrete Schemes of Correctors   SOV/20-123-6-19/50

(ventil'naya set') connected to triggers which fix the incident signal. The sequence of the operations necessary for this construction is discussed. The last part of this paper deals with correctors which are constructed on the basis of hysteresis elements with rectangular loops. There are 4 figures and 8 references, 5 of which are Soviet.

ASSOCIATION: Institut avtomatiki i telemekhaniki Akademii nauk SSSR (Institute of Automation and Telemechanics of the Academy of Sciences, USSR)

PRESENTED: July 17, 1958, by V. S. Kulebakin, Academician

SUBMITTED: July 17, 1958

Card 2/2

PHASE I BOOK EXPLOITATION   SOV/4097

Gavrilov, Mikhail Aleksandrovich, Doctor of Technical Sciences

Novyye idei v oblasti avtomatiki (New Ideas in the Field of Automation)
   Moscow, 1959. 43 p. 10,000 copies printed.

Sponsoring Agency: Obshchestvo po rasprostraneniyu politicheskikh i
   nauchnykh znaniy RSFSR.

Ed.: L. M. Gorodenskiy; Tech. Ed.: N. A. Flakserman.

PURPOSE: This book is intended for the general reader.

COVERAGE: The book discusses in general terms the theory, fundamental
   elements, and components of electronic computers and automatic
   control devices and the concept of program control for these
   automatic devices in operation. No personalities are mentioned.
   There are no references.

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New Ideas in the Field of Automation   SOV/4097

AVAILABLE: Library of Congress (TJ 213 .5. G 35)

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                                                           8-18-60

GAVRILOV, M.A.

GAVRILOV, M.A.

report to be presented at the 1st Intl Congress of the Intl Federation of Automatic Control, 27 Jun-5 Jul 1960, Moscow, USSR.

AIZERMAN, M. A. - "Lure stability in electronic calculating devices in the solution of nonlinear equations in indefinite form"

CHELYUSTKIN, A. B. - "Use of calculating devices in systems for the automatic control of rolling mills"

CHICHINADZE, V. K. - "Concerning some problems of the organization of self-adjusting and self-teaching systems of automatic control, based on principles of random search"

DAVYDOV, N. I. - "Development of automatic control systems for boiler units"

DUDNIKOV, Ye. G. - "Determination of optimum adjustments of industrial automatic regulating systems according to initial data obtained from experience"

MEERIK, A. I., and MIKHAYLOVSKIY, B. N. - "Methods of organizing dynamic functions in the theory of nonlinear regulating systems"

EMELIANOV, N. N. - "Balanced regulation and inter-communications of a multi-motor electric drive and technology in continuous rolling mills"

FELDBAUM, A. A. - "Problems of statistical theory of automatic optimization systems"

FROLOV, V. I. - "Automation of a reversible cold rolling mill for nonferrous metal"

FILIPPOV, A. F. - "Application of the theory of differential equations with a discontinuous right side to nonlinear problems of automatic regulation"

GAVRILOV, M. A. - "Structural surplus and operational reliability of relay devices"

GARDIN, M. I. - "Automation of irrigation systems"

GORODETSKIY, V. I., KOSTYUK, V. I., and OSTROV, K. F., KUKAN, L. K., and FRY, K. K. - "Power regulation of disturbance and problems of the stability of electric power systems"

GORDONOV, B. A. - "Logical method of synthesis of functional converters of telemechanical systems (for dispersed structure)"

IL'IN, V. A. - "Methods of transmission of information and the structure of code-impulse system of tele-"

IVAKHNENKO, A.G. - "Concerning the application of the theory of combined regulation systems for cybernetic adaptation"

KHARKEVICH, A. A. - "A quasi-equilibrated bridge"

KRASOVSKIY, A. A. - "Concerning the process of extrm regulation of inert objects in the presence of disturbance"

KULEBAKIN, V. V. - "Some problems of the theory of statistical linearization and its application"

KULIK, F. M. - "An element in system of automatic control"

VOSKOBOYNIKOV, L.N., KOFF, D. K., SYSIN, A. Ye., and POPOV, B. F. - "A problem of biodielectric control"

POPOV, Ye. B. - "New types of photo resistances and their field of use"

POPOV, M. A., MARTYNOV, N. G., and KOTOV, K. A. - "System of automatic control and regulation of blast distribution in the lowers of blast furnace"

PUGACHEV, V. S. - "Investigation of the dynamics of the hydraulic duct of a coupled lathe"

RASOVSKIY, A. A. - "Dynamics of continuous systems of automatic regulation with correlation self-adjustment of corrective devices"

RASOVSKIY, N. M. - "Concerning the selection of parameters of automatic stability systems"

STESYUK, A. I. - "The dynamics of devices imitating living organisms"

STROGANOV, R.P. - "Mechanization of processes of analysis and synthesis of the structure of relay devices"

LAVI, I. D. - "Pneumatic calculating devices as a means of insuring the reliability of complex automation systems"

LAZAREV, V. G. - "The invariant theory of automatic regulation and control systems"

16.680

35882

S/044/62/000/002/079/092
C111/C333

AUTHOR: Gavrilov, M. A.

TITLE: Structural excessiveness and reliability in the operation
               of relay devices

PERIODICAL: Referativnyy zhurnal, Matematika, no. 2, 1962, 58,
               abstract 2V330. (M., AN SSSR, 1960, pp. 16, ill.)

TEXT: Proposed is a method which admits to solve the following
problem: Let the working conditions of a relay device and the number d
of its internal elements which can simultaneously fall out be given;
from these data determine the structure of a reliable relay device.
The table of states of the relay device, obtained by the usual methods
of the theory of the relay device, is understood as a table of communi-
cations which must be coded with a code correcting d errors. A list
of coding words of the correction code is obtained by known methods;
this list is understood as table of states of the new-structure of the
device. It is shown that the new structure allows the device to satisfy
the given working conditions even if a certain number $d_0 \leq d$ of elements
simultaneously falls out. The structures of the device obtained by the
proposed method possess an excessiveness of the internal elements equal
[Abstracter's note: Complete translation]   to the excessiveness of
Card 1/1   the correction code.

GAVRILOV, M.A.

PHASE I BOOK EXPLOITATION   SOV/3781

Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki

Promyshlennaya telemekhanika (Industrial Telemechanics) Moscow, 1960.
284 p. Errata slip inserted. 4,000 copies printed.

Resp. Ed.: M.A. Gavrilov; Ed. of Publishing House: Ye.N. Grigor'yev;
Tech. Ed.: N.G. Shevchenko.

PURPOSE: This collection of articles is intended for scientific
workers and engineers in the field of telemechanics.

COVERAGE: The book contains studies completed in 1957 by the
workers of the Institut avtomatiki i telemekhaniki AN SSSR
(Institute of Automation and Telemechanics, Academy of Sciences
USSR). They include telemechanic equipment, particularly con-
tactless systems and systems for distributed equipment, the
design of telemechanic signal systems, problems of bridge
minimizing in relay circuitry, and methods of synthesizing
relay circuitry using contactless components. No personalities
are mentioned. Most of the articles are accompanied by references.

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Industrial Telemechanics   SOV/3781

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Industrial Telemechanics   SOV/3781

Prangishvili, I.V. New Components for Contactless Telemechanic
Systems
                                                              236

Bilik, R.V. Remote Signal System Using Polarized Relays   260

Abdullayev, D.A. Remote Signaling in Telemechanic Systems
With Distributed Control Points
                                                              277

AVAILABLE: Library of Congress (TJ 213.A325)

Card 4/4   KM/rem/jb
                                                      7-20-60

TSYPKIN, Ya.Z., doktor tekhn.nauk, otv.red.(Moskva); GAVRILOV, M.A., doktor
tekhn.nauk, red.; DOLGOLENKO, Yu.V., doktor tekhn.nauk, red.(Leningrad);
KOTEL'NIKOV, V.A., kand.tekhn.nauk, red.; LERNER, A.Ya., doktor
tekhn.nauk, red.; MOROSANOV, I.S., red. (Moskva); POSPELOV, G.S.,
doktor tekhn.nauk, red.; FEL'DBAUM, A.A., doktor tekhn.nauk, red.;
KHRAMOY, A.V., kand.tekhn.nauk, red.; PODGOYETSKIY, M.L., red.izd-va;
MARKOVICH, S.G., tekhn.red.

[Theory and application of discrete automatic control systems] Teo-
riia i primenenie diskretnykh avtomaticheskikh sistem; trudy kon-
ferentsii. Moskva, Izd-vo Akad.nauk SSSR, 1960. 572 p.
                                        (MIRA 13:7)

1. Konferentsiya po voprosam teorii i primeneniye diskretnykh avto-
maticheskikh sistem. Moscow, 1958.
                (Automatic control)

LERNER, Aleksandr Yakovlevich, doktor tekhn.nauk; GAVRILOV, Mikhail
Aleksandrovich, prof., doktor tekhn.nauk; MALOV, Vladimir
Sergeyevich, dotsent, kand.tekhn.nauk; ISLANKINA, T.F., red.;
NAZAROVA, A.S., tekhn.red.

[Automation of tomorrow] Avtomatika zavtra. Moskva, Izd-vo
"Znanie," 1961. 47 p. (Vsesoiuznoe obshchestvo po rasprostrane-
niiu politicheskikh i nauchnykh znanii. Ser.4, Tekhnika, no.16)
(MIRA 14:12)

(Automation)

S/569/61/003/000/006/011
D201/D305

16.6600

AUTHOR: Gavrilov, M.A. (USSR)

TITLE: Structural redundancy and reliability of a switching
            circuit operation

SOURCE: International Federation of Automatic Control. 1st
            Congress, Moscow, 1960. Statisticheskiye metody iss-
            ledovaniya. Teoriya struktur, modelirovaniye, termi-
            nologiya, obrazovaniye. Moscow, Izd-vo AN SSSR, 1961,
            323 - 339

TEXT: The author considers the problem of designing on-off systems
having a given reliability. The problem of obtaining a reliable
operation of on-off devices is usually solved by applying the con-
dition of so-called "structural redundancy". In other words by in-
troducing into the structure of the relay arrangement additional
switching elements which are not needed for normal system operation
in the absence of developed faults. The problem is thus reduced to
determining m states of such internal elements (i.e. elements which

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Structural redundancy and reliability .. D201/D305

are required for realizing the given control algorithm) which would
satisfy exactly the control algorithm for a given number of inter-
nal element failures. This is proved to be analogous to the problem
of designing a system of discrete signals, correcting d and detect-
ing $q(d + 1 \leqslant q \leqslant d + \Delta)$ failures. The problem is illustrated by
solving an elementary system of a single relay. The solution gives
the number of three elements to replace a single on-off element if
the reliable operation has to be obtained for any one of the addi-
tional element failing to oper te. Finally, the method is applied
for designing the structure of a binary counter, operating correct-
ly with the failure of any one of its switching elements. In the
case of multi-position switching elements, the mechanics of design-
ing a switching device is stated to remain the same, but instead of
the methods dealing with binary signals, those analyzing the prob-
lems of non-binary signal systems, should be applied. A discussion
followed in which the following took part: M. Nedelku (Rumania), G.
K. Moisil (Rumania) and Wang Ch'uan - Shang (C.P.R.). There are 9
tables, 7 figures and 20 references: 12 Soviet-bloc and 8 non-So-
viet-bloc. The 4 most recent references to the English-language pu-

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S/569/61/003/000/006/011
Structural redundancy and reliability .. D201/D305

blications read as follows: J. von Neumann, Probabilistic Logics
and the Synthesis of Reliable Organisms from unreliable components,
Automata studies, Princeton Univ. Press, Princeton, 1956; E. F.
Moore, C. E. Shannon, Journ. of Frankl. Inst., v. 262, no. 3, 191
208, no. 4, 281-297, 1956; M. Kochen, IBM Journ. of Research and
Development, v. 3, no. 2, 169-186, 1959; A. Mullin, Communications
and Electronics, 1958, Nov. 606-610.

Card 3/3

TRAPEZNIKOV, V.A., akademik, glav. red.; AYZERMAN, M.A., doktor tekhn. nauk, red.; AGEYKIN, D.I., kand. tekhn. nauk, red.; ARTOBOLEVSKIY, I.I., akademik, red.; BATRACHENKO, L.P., inzh., red.; VORONOV, A.A., doktor tekhn. nauk, red.; GAVRILOV, M.A., doktor tekhn. nauk, red.; DIKUSHIN, V.I., akademik, red.; KARIBSKIY, V.V., kand. tekhn. nauk, red.; KOGAN, B.Ya., kand. tekhn. nauk, red.; KRASIVSKIY, S.P., red.; KULEBAKIN, V.S., akademik, red.; IERNER, A.Ya., doktor tekhn. nauk, red.; LETOV, A.M., kand. tekhn. nauk, red.; MEYEROV, M.V., doktor tekhn. nauk, red.; PET-ROV, B.N., akademik, red.; PUGACHEV, V.S., doktor tekhn. nauk, red.; SOTSKOV, B.S., red.; STEFANI, Ye.M., kand. tekhn. nauk, red.; KHRAMOY, A.V., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN, A.O., kand. tekhn. nauk, red.; CHILIKIN, M.G., doktor tekhn. nauk, red.; NAUMOV, B.N., kand. tekhn. nauk, red.; KASHINA, P.S., tekhn. red.

[Transactions of the International Federation of Automatic Control, 1st International Congress, Moscow, 1960] Trudy I Mezhdunarodnogo kongressa Mezhdunarodnoi federatsii po avtomaticheskomu upravleniiu. Moskva, Izd-vo Akad. nauk SSSR. Vol.2. [Theory of discrete systems, optimal systems, and adaptive automatic control systems] Teoriia diskretnykh, optimal'nykh i samonastraivaiushchikhsia sistem. 1961. 996 p.
(MIRA 14:9)

1. International Federation of Automatic Control, 1st International Congress, Moscow, 1960. 2. Chlen-korrespondent AN SSSR (for Sotskov)
(Automatic control)

GAVRILOV, M. A.

"The advanced of theory of switching systems and finite automata"

report submitted for the Intl. Symposium on Relay Systems and Finite Automata Theory
(IFAC), Moscow, 24 Sep-2 Oct 1962.

GAVRILOV M.A.

Industrial Electronics
1962 bk.

BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; BELKOVICH, D.M.,
zaml glav. red.; LERNER, A.Ya., doktor tekhn. nauk, prof.,
zam. glav. red.; AVEN, O.I., red.; AGEYKIN, D.I., red.; kand.
tekhn. nauk, dots., red.; AYZERMAN, M.A., red.; VENIKOV, V.A.,
doktor tekhn. nauk, prof., red.; VORONOV, A.A., doktor tekhn.
nauk, prof., red.; GAVRILOV, M.A., doktor tekhn. nauk, prof.,
red.; ZERNOV, D.V., red.; IL'IN, V.A., doktor tekhn. nauk,
prof., red.; KITOV, A.I., kand. tekhn. nauk, red.; KOGAN, B.YA.,
doktor tekhn. nauk, red.; KOSTOUSOV, A.I., red.; KRINITSKIY.
N.A., kand. fiz.-mat. nauk red.; LEVIN,G.A.,prof.red.;
LOZINSKIY, M.G., doktor tekhn. nauk, red.: MOSHEYEVSKIY, V.I.
red.; MAKSAREV, Yu.Ye., red.; MASLOV,A.A.,dots.,red.;POPKOV,A.A.,red.;
RAKOVSKIY, M.Ye., red.; ROZENBERG, L.D., doktor tekhn.nauk,
prof., red.; SOTSKOV, B.S., red.; TIMOFEYEV, P.V., red.;
USHAKOV, V.B., doktor tekhn. nauk, red.; FEL'DBAUM, A.A.,
doktor tekhn. nauk, prof., red.; FROLOV, V.S., red.;
KHARKEVICH, A.A., red.; KHRAMOY, A.V., kand. tekhn. nauk, red.;
TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN,
A.B., kand. tekhn. nauk, red.; SHREYDER, Yu.A., kand. fiz.-
mat. nauk, dots., red.; BOCHAROVA, M.D., kand. tekhn.nauk,
starshiy nauchnyy red.; DELONE, N.N., inzh., nauchnyy red.;
BARANOV, V.I., nauchnyy red.; PAVLOVA, T.I., tekhn. red.
(Continued on next card)

BERG, A.I.--- (continued). Card 2.

[Industrial electronics and automation of production proces-
ses]Avtomatizatsiia proizvodstva i promyshlennaia elektronika.
Glav. red. A.I.Berg i V.A.Trapeznikov. Moskva, Gos.nauchn.
izd-vo "Sovetskaia Entsiklopediia." Vol.1. A - I. 1962. 524 p.
(MIRA 15:10)

1. Chlen-korrespondent Akademii nauk SSSR (for Sotskov,
Kharkevich, Zernov, Timofeyev, Popkov).
(Automatic control)   (Electronic control)

ACCESSION NR: AT4031771   S/0000/63/000/000/0180/0211

AUTHOR: Gavrilov, M. A.

TITLE: General method for the construction of bridge structures of (1, K)-networks

SOURCE: AN SSSR. Strukturnaya teoriya releyny*kh ustroystv (Structural theory of relay devices). Moscow, Izd-vo AN SSSR, 1963, 180-211

TOPIC TAGS: control system, automatic control, relay, relay structure, feedback, bridge structure

ABSTRACT: The author has previously (M. A. Gavrilov. Minimizatsiya bulevy*kh funktsiy, kharakterizuyushchikh releyny*ye tsepi. "Avtomatika i telemekhanika," no. 9, 1959) proposed a method for determining the general and particular minimal forms in a class of parallel-sequential structures, requiring the enumeration only of the working and forbidden states and thus free of the principal defect of other known methods. This method is known as the "probe method." In the paper mentioned above, the concept of the minimal term was introduced, which is defined as the term of a Boolean function containing the minimum number of letters: such a number of such letters that, if reduced by even one letter, this term will define not only the working state but at least one forbidden state. It was proven that the minimal form of the Boolean function, characterizing the structure of a relay device,

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the operating conditions of which are assigned by the number of working states, contains only minimal terms which define all these states. Further investigation of this method has shown that it may also be effectively applied to the solution of the problem of bridge structure construction. This question is the subject of the present article. The author claims that he knows of only three works in which the intuition of the designer is replaced by a definite algorithm, determining the order of selection of the structural elements and the transition from one structural node to the other. The first of these, proposed by A. Sh. Blokh (Kanonicheskiy metod sinteza elektronny*kh skhem. Trudy* Instituta mashinizatsii i avtomatizatsii AN BSSR, no. 1, 1961), consists in the construction of a canonical table and is based entirely on the divisability of the structure circuits, which prevents the utilization of all possibilities for the construction of bridge structures. In addition, each of the canonical tables is built for a definite arrangement of the row-variable ribs of the tree, which requires inspection of the variants in order for the most rational solution to be obtained. The method involves a large number of operations. The second method, proposed by V. N. Roginskiy (Elementy* strukturnogo sinteza releyny*kh skhem upravleniya. Is-vo AN SSSR, 1959) is based, like the first, on the sequential building of structural nodes from the finite to the initial with a definite order of arrangement of the acting circuits of the relay elements in the structure of the device. In the third method, proposed by

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ACCESSION NR: AT4031771

F. Svoboda (Uziti neurcite dvonhodnotive Booleovy funkce na synthesu jednotaktnyich hrad-
lovych shemat. Stroje na spracovani informaci. Sbor. 2, CSAV. Praha, 1954), the same
order in the construction of a (1, K)-network structure is employed; however, the sequence
of the variables is not fixed and at each node there is a selection both of the number of sub-
sequent nodes and of the composition of the acting organs of the elements occurring in the
circuits running to these nodes. The large number of operations required in these methods
leads to the fact that even with four or five variables their use in manual synthesis is dif-
ficult and when mechanized requires a great deal of machine time or (in the case of special
machines) — a large amount of equipment. The reason for the unwieldiness of these methods
is seen by the author primarily in the fact that they require consideration of all the 2^n
states (i. e., the working and forbidden, as well as the conditional states), although in
principle the operating conditions of a relay device are completely determined by an enumera-
tion of the states relating to any two of these three categories of states. (The point is em-
phasized that this defect is inherent in the majority of the methods published on minimiza-
tion in the class of parallel-sequential structures.) What the method proposed in this
article does (and this is, in the author's view, the most rational approach) is to determine
these conditions by means of the working and forbidden states, since in relay devices
employed in actual practice the number of conditional states increases as a function of an
increasing number of variables far more rapidly than the number of working and forbidden

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ACCESSION NR: AT4031771

states. The author has represented the bridge structure of a (1, K)-network in the form of a certain graph, in which each apex corresponds to one of the nodes of the structure and each rib to the direct structural conductivity of the circuit between the corresponding nodes (that is, to the structural conductivity of the circuit running between the given nodes and entering no other nodes). The graph is oriented by matching certain of its apices with the initial and terminal nodes of the (1, K)-network (Fig. 1 of the Enclosure). The structure of the (1, K)-network is constructed so that each of the ribs represents the conductivity of a single acting organ of a relay element or their parallel connection, which will correspond to building a relay device structure in which each internodal circuit will contain one or several parallel-connected acting organs. Such ribs the author calls "elementary." When building such a graph, the initial and terminal nodes are given, while for each of the latter a table of states is known which characterizes the operating conditions of the relay element and the relay circuits which are to be realized between the initial node and each of the terminal nodes. It is necessary to determine the number of graph apices required for this purpose and all the reentering of the elementary ribs of the graph, including those reenterings and conductivities equal to zero or unity. The author describes in detail the operations involved in transforming the state tables, considering first a particular case in which, in the tables, for each of the output nodes of the structure there are identical conditional states. Orig. art. has: 32 tables and 14 figures.

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ACCESSION NR: AT4031771

ASSOCIATION: None

SUBMITTED: 14Nov63 DATE ACQ: 16Apr64 ENCL: 01

SUB CODE: IE, EC NO REF SOV: 005 OTHER: 001

Card 5/6

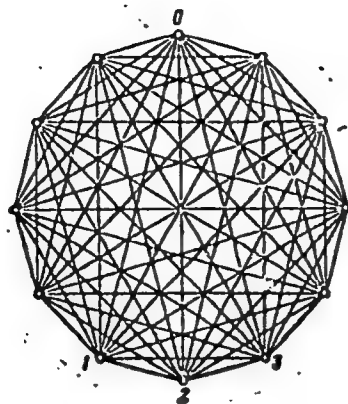Fig. 1.   Graph with elementary ribs 0 — apex corresponding to initial node;
1, 2, 3 — apices corresponding to terminal nodes

Card 6/6

GAVRILOV, M.A., prof., otv. red.; GORSHKOV, G.B., red. izd-va; MAKUNI, Ye.V., tekhn. red.

[Structural theory of relay devices] Strukturnaia teoriia releinykh ustroistv. Moskva, Izd-vo AN SSSR, 1963. 270 p.
(MIRA 17:1)

1. Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.

GAVRILOV, M..A.

"Signalization and Prediction in Discrete Control
Systems with Structural Redundance."

paper to be presented at the IFAC Congress held in
Basel, Switzerland, 27 Aug to 4 Sep 63

GAVRILOV, M.A. (Moskva)

Construction of block-type relay devices and finite automata.
Izv. AN SSSR. otd. tekh. nauk. tekh. kib. no.3:13-27 My-Je '63.
(MIRA 16:7)

(Automatic control)   (Electric relays)

GAVRILOV, M.A., doktor tekhn.nauk

Symposium on the Theory of Relay Systems and Finite Automata.
Vest.AN SSSR 33 no.4:85-88 Ap '63.   (MIRA 16:4)
                (Electric relays)   (Automata)

BERG,A.I.,glav.red.; TRAPEZNIKOV,V.A.,glav.red.; TSYPKIN, Ya.Z., doktor
tekhn.nauk,prof.,red.; VORONOV,A.A., doktor tekhn.nauk,prof.,red.;
SOTSKOV,B.S., doktor tekhn.nauk,red.; AGEYKIN,L.I., doktor tekhn.
nauk, red.; GAVRILOV,M.A., red.; VENIKOV,V.A., doktor tekhn.nauk,
prof.,red.; CHELYUSTKIN,A.B., doktor tekhn. nauk,red.; PROKOF'YEV,
V.N., doktor tekhn.nauk,prof.,red.; IL'IN,V.A., doktor tekhn.nauk,
prof.,red.; KITOV,A.I.,doktor tekhn.nauk,red.; KAINITSKIY, N.A.,
kand. fiz.-matem.nauk,red.; KOGAN,B.Ya., doktor tekhn.nauk, red.;
USHAKOV,V.B., doktor tekhn.nauk,red.; LERNER,Yu.A., doktor tekhn.
nauk,prof., red.; FEL'DBAUM, A.A.,prof., doktor tekhn.nauk,red.;
SHREYDER,Yu.A., kand. fiz.-mat. nauk,dots.,red.; KLARKEVICH,A.A.,
akad., red.;TIMOFEYEV,P.V., red.; MASLOV,A.A.,dots.,red.; LEVIN,
G.A., prof.,red.; LOZINSKIY,M.G., doktor tekhn.nauk,red.; NETUSHIL,
A.V., doktor tekhn.nauk,prof.,red.; POPKOV,V.I.,red.; ROZENBERG,
L.D.,doktor tekhn.nauk,prof.,red.; LIVSHITS,A.L.,kand.tekhn.nauk,red.

[Automation of production and industrial electronics] Avtomatiza-
tsiia proizvodstva i promyshlennaia elektronika; entsiklopediia
sovremennoi tekhniki. Moskva, Sovetskaia Entsiklopediia. Vol.3.
Pogreshnost' resheniia - Teleizmeritel'naia sistema chastotnaia.
1964. 487 p. (MIRA 17:10)
1. Chlen-korrespondent AN SSSR (for Sotskov, Gavrilov, Timofeyev,
Popkov).

KHRAMOY, A.V. [deceased]; MEYEROV, M.V.; AYZERMAN, M.A.; ULANOV, G.M.;
    TSYPKIN, Ya.Z.; FEL'DBAUM, A.A.; LERNER, A.Ya.; PUGACHEV, V.S.;
    IL'IN, V.A.; GAVRILOV, M.A.

Work of the Institute of Automatic and Remote Control
on the development of the theory of automatic control during
1939-1964. Avtom. i telem. 25 no. 6:763-807 Je '64.
                                      (MIRA 17:7)

L 17559-65   EWT(d)   IJP(c)
ACCESSION NR: AP5000152   S/0103/64/025/011/1588/1596

B

AUTHOR: Gavrilov, M. A. (Moscow)

TITLE: More accurate determination of the number of states in constructing finite automata 16

SOURCE: Avtomatika i telemekhanika, v. 25, no. 11, 1964, 1588-1596

TOPIC TAGS: finite automaton

ABSTRACT: A theory of constructing complex finite automata from relatively simple units is considered. A. Gill's algorithm (IRE Trans., v. EC-10, no. 3, Sept. 1961) for cascading the units is found to yield a maximum number of states. A better evaluation of the number of states is suggested. A finite automaton with two inputs and one output is considered, and its functioning is expressed by D. A. Huffman's flow tables (J. Franklin Inst., v. 257, Mar-Apr. 1954). The automaton is subdivided into two units, and the conditions of equivalence are

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ACCESSION NR: AP5000152

formulated. This automaton has 10 states according to the author's algorithm and 20 states according to Gill's; the difference is explained by the cyclic and semi-cyclic sequences of states which either do not result in stable states or lead to them via several unstable states. Orig. art. has: 8 figures and 18 formulas.

ASSOCIATION: none

SUBMITTED: 06Apr63   ENCL: 00

SUB CODE: DP   NO REF SOV: 000   OTHER: 003

Card 2/2

BERG, A.I., glav. red.; TRAFEZNIKOV, V.A., glav. red.; TSYFKIN,
Ya.Z., doktor tekhn. nauk, prof., red.; VORONOV A.A..
prof., red.; AGEYKIN, D.I., doktor tekhn.nauk red.;GAVRILOV,
M.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.;
SOTSKOV, B.S., red.; CHELYUSTKIN, A.B., doktor tekhn. nauk,
red.; PROKOF'YEV, V.N., doktor tekhn. nauk, prof., red.;
IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I.,
doktor tekhn. nauk, red.; KRINITSKIY, N.A., kand. fiz. mat.
nauk, red.; KOGAN, B.Ya., doktor tekhn. nauk, red.; USHAKOV,
V.B., doktor tekhn. nauk, red.; LERNER, A.Ya., doktor tekhn.
nauk, prof., red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof.,
red.; SHREYDER, Yu.A., kand. fiz.-mat. nauk, red.; KHARKEVICH,
A.A., akademik, red. [deceased]; TIMOFEYEV, P.V., red.;
MASLOV, A.A., dots., red.; TRUTKO, A.F., inzh., red.; LEVIN,
G.A., prof., red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.;
NETUSHIL, A.V., doktor tekhn. nauk, prof., red.; POPKOV, V.I.,
red.; ROZENBERG, L.D., doktor tekhn. nauk, prof., red.;
LIFSHITS, A.L., kand. tekhn. nauk, red.; AVEN, O.I., kand.
tekhn. nauk, red.; BLANN, O.M [Blunn, O.M.], red.; BROYDA, V.,
inzh.,prof.,red.; BREKKL', L [Brockl,L.] inzh., knad. nauk, red.;
VAYKHARDT, Kh. [Weichardt, H.], inzh., red.; BOCHAROVA,M.D., kand.
tekhn. nauk, st. nauchn. red.

[Automation of production processes and industrial electronics]
Avtomatizatsiia proizvodstva i promyshlennaia elektronika; entsiklo-
pediia sovremennoi tekhniki. Moskva, Sovetskaia entsiklopediia.
Vol.4. 1965. 543 p.   ('TRA 18:6)

GAVRILOV, M.A., dcktor tekhn. nauk, prof., otv. red.

[Theory of finite and probability automata; transactions]
Teoriia konechnykh i veroiatnostnykh avtomatov; [trudy].
Moskva, Nauka, 1965. 403 p.   (MIRA 18:7)

1. International symposium on relay systems theory and
finite automata, Moscow, 1962.

GAVRILOV, M.A., doktor tekhn. nauk, prof., tv. red.; KISELEV V.N., red.

[Synthesis of relay structures; transactions] Sintez relainykh struktur; trudy Mezhdunarodnogo simpoziuma po teorii releinykh ustroistv i konechnykh avtomatov (IFAK). Moskva, Nauka, 1965. 406 p. (MIRA 18:11)

1. International Symposium on Relay Systems Theory and Finite Automata, Moscow, 1962.

L 04988-67 EWT(d)/EWP(k)/EWP(h)/EWP(l)/EWP(v) GD

ACC NR: AT6016438 (A) SOURCE CODE: UR/0000/65/000/000/0211/0220

38

B+1

AUTHOR: Gavrilov, M. A.

ORG: none

TITLE: Signaling and predicting failures in discrete control devices with structural redundancy

SOURCE: International Federation of Automatic Control. International Congress, 2d, Basel, 1963. Diskretnyye i samonastraivayushchiyesya sistemy (Discrete and adaptive systems); trudy kongressa. Moscow, Izd-vo Nauka, 1965, 211-220

TOPIC TAGS: circuit failure, system reliability, reliability engineering, automatic control equipment

ABSTRACT: Methods involving structural redundancy are of great importance in solving the problem of reliable operation of automatic control devices. This article examines certain fundamental possibilities of signaling or predicting breakdowns in automatic control devices. One principle previously described by the author which governs these possibilities is that determination of the minimum number of extra internal elements necessary to provide requisite reliability completely coincides with the problem of determining the minimum number of supplementary symbols needed to construct correction codes for the corresponding number of

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L 04988-67

ACC NR: AT6016438 $\circlearrowleft$

mistakes. This method involves construction of tables of states and relates to the case where failure probability is the same for all internal elements, element failures are symmetrical, and individual failures are independent. Other conditions demand a different approach. The discussion expands the application of this method. Orig. art. has: 8 formulas, 3 tables, and 4 figures.

SUB CODE: 09/, SUBM DATE: 29Sep65/ ORIG REF: 004/ OTH REF: 004
          13/

Card 2/2

ACC NR: AT6030867   SOURCE CODE: UR/0000/66/000/000/0005/0016

AUTHOR: Gavrilov, M. A. (Corresponding member AN SSSR)

ORG: none

TITLE: Evaluation of operating conditions of relay systems from the point of view of their complexity

SOURCE: Moscow. Institut avtomatiki i telemekhaniki. Abstraktnaya i strukturnaya teo-riya releynykh ustroystv (Abstract and structural theory of relay devices). Moscow, Izd-vo Nauka, 1966, 5-16

TOPIC TAGS: relay system, relay system analysis, truth table, relay system design, algorithm, electric relay

ABSTRACT: Given the operational conditions of a certain aggregate of blocks in a re-lay system, denoted in some symbolic language, the interactions of these blocks are determined by isolating external and internal inputs and outputs and finding the in-teraction between the internal inputs and outputs of individual blocks. It is neces-sary to use the same or another symbolic language to describe the operating conditions of some equivalent relay system, constructed as a single block, or an aggregate of blocks, when this system retains all the external inputs and outputs of the original block aggregate or realizes precisely the same functional algorithm as the original block aggregate. In earlier works, the author has proposed the following three opera-

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ACC NR: AT6030867

tions for the equivalent transformations of the transfer tables: 1) multiplication of the transfer tables, i. e., replacement of two blocks by one equivalent block; 2) union of transfer tables, i. e., the replacement of two blocks which have independent and repetitive external inputs and outputs, by the third equivalent block; and 3) division of the transfer tables, i. e., the division of an arbitrary block which has several outputs into two or more blocks. Each of these steps is analyzed using block diagrams and truth tables. Orig. art. has: 7 figures, 19 tables, 5 formulas.

SUB CODE: 09,12/   SUBM DATE: 06Jun66/   ORIG REF: 006/   OTH REF: 002

Card 2/2

GAVRILOV, M.A.

Ore roasting from the Khovu Aksy deposit. TSvet.met. 35
no.8:47-49 Ag '62.   (MIRA 15:8)
        (Khovu Aksy region—Ore deposits)
        (Nonferrous metals—Metallurgy)

#144

GASANOV, Kh. N

TO

GÁRILOV, M.D.

The End!